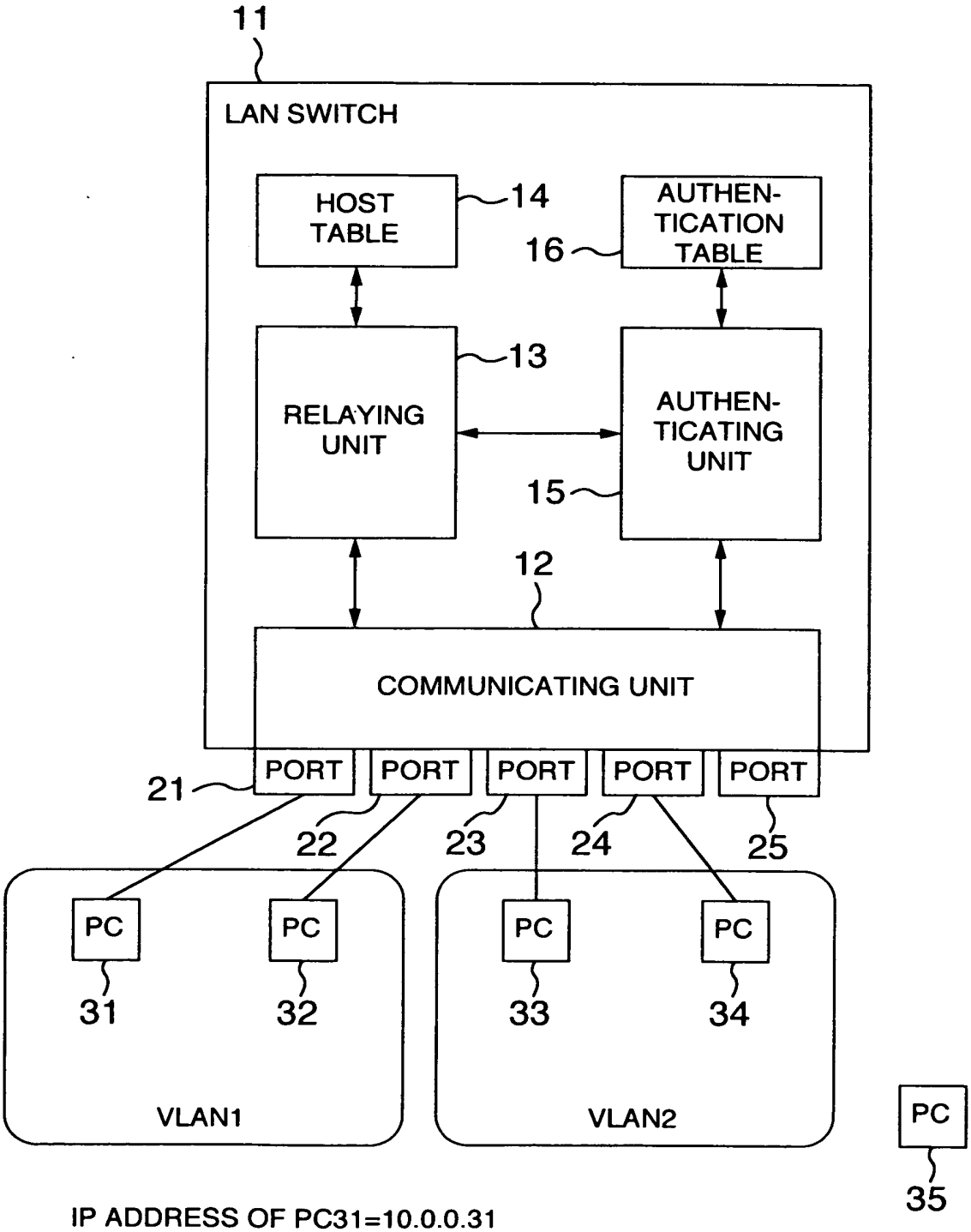
FIG.1



IP ADDRESS OF PC31=10.0.0.31
IP ADDRESS OF PC32=10.0.0.32
IP ADDRESS OF PC33=10.0.0.33
IP ADDRESS OF PC34=10.0.0.34

FIG.2

14

HOST TABLE

14a SOURCE IP ADDRESS	14b SOURCE MAC ADDRESS	14c DESTINATION MAC ADDRESS	14d PORT NUMBER	14e VLAN
10.0.0.31	10:00:00:00:00:31	10:00:00:00:00:51	21	1
10.0.0.32	10:00:00:00:00:32	10:00:00:00:00:52	22	1
10.0.0.33	10:00:00:00:00:33	10:00:00:00:00:53	23	2
10.0.0.34	10:00:00:00:00:34	10:00:00:00:00:54	24	2

FIG.3

16

AUTHENTICATION TABLE

16a IP ADDRESS	16b USER NAME	16c PSSWORD	16d CONTACT MAIL ADDRESS
10.0.0.31	PC31	PSS31	pc31@hitachi.co.jp, sw11a@hitachi.co.jp
10.0.0.32	PC32	PSS32	pc32@hitachi.co.jp, sw11a@hitachi.co.jp
10.0.0.33	PC33	PSS33	pc33@hitachi.co.jp, sw11a@hitachi.co.jp
10.0.0.34	PC34	PSS34	pc34@hitachi.co.jp, sw11a@hitachi.co.jp

US-PAT-NO: 6950434
DOCUMENT-IDENTIFIER: US 6950434 B1

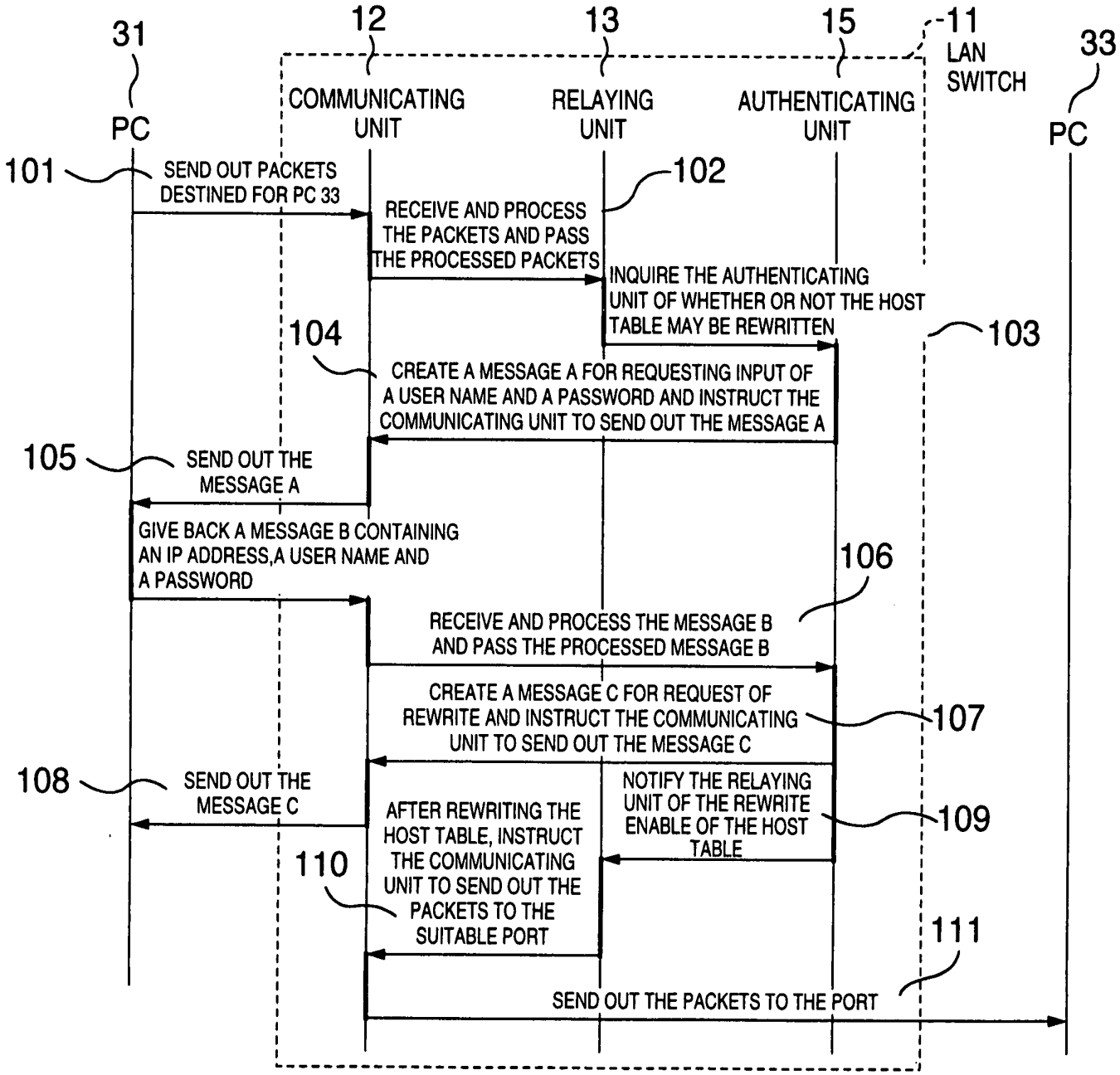

31
PC
12
COMMUNICATING UNIT
13
RELAYING UNIT
15
AUTHENTICATING UNIT
11
LAN SWITCH
33
PC
101
SEND OUT PACKETS DESTINED FOR PC 33
102
RECEIVE AND PROCESS THE PACKETS AND PASS THE PROCESSED PACKETS
INQUIRE THE AUTHENTICATING UNIT OF WHETHER OR NOT THE HOST TABLE MAY BE REWRITTEN
103
104
CREATE A MESSAGE A FOR REQUESTING INPUT OF A USER NAME AND A PASSWORD AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE A
105
SEND OUT THE MESSAGE A
GIVE BACK A MESSAGE B CONTAINING AN IP ADDRESS,A USER NAME AND A PASSWORD
106
RECEIVE AND PROCESS THE MESSAGE B AND PASS THE PROCESSED MESSAGE B
CREATE A MESSAGE C FOR REQUEST OF REWRITE AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE C
107
108
SEND OUT THE MESSAGE C
NOTIFY THE RELAYING UNIT OF THE REWRITE ENABLE OF THE HOST TABLE
109
AFTER REWRITING THE HOST TABLE, INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE PACKETS TO THE SUITABLE PORT
110
111
SEND OUT THE PACKETS TO THE PORT

FIG.4

FIG.5

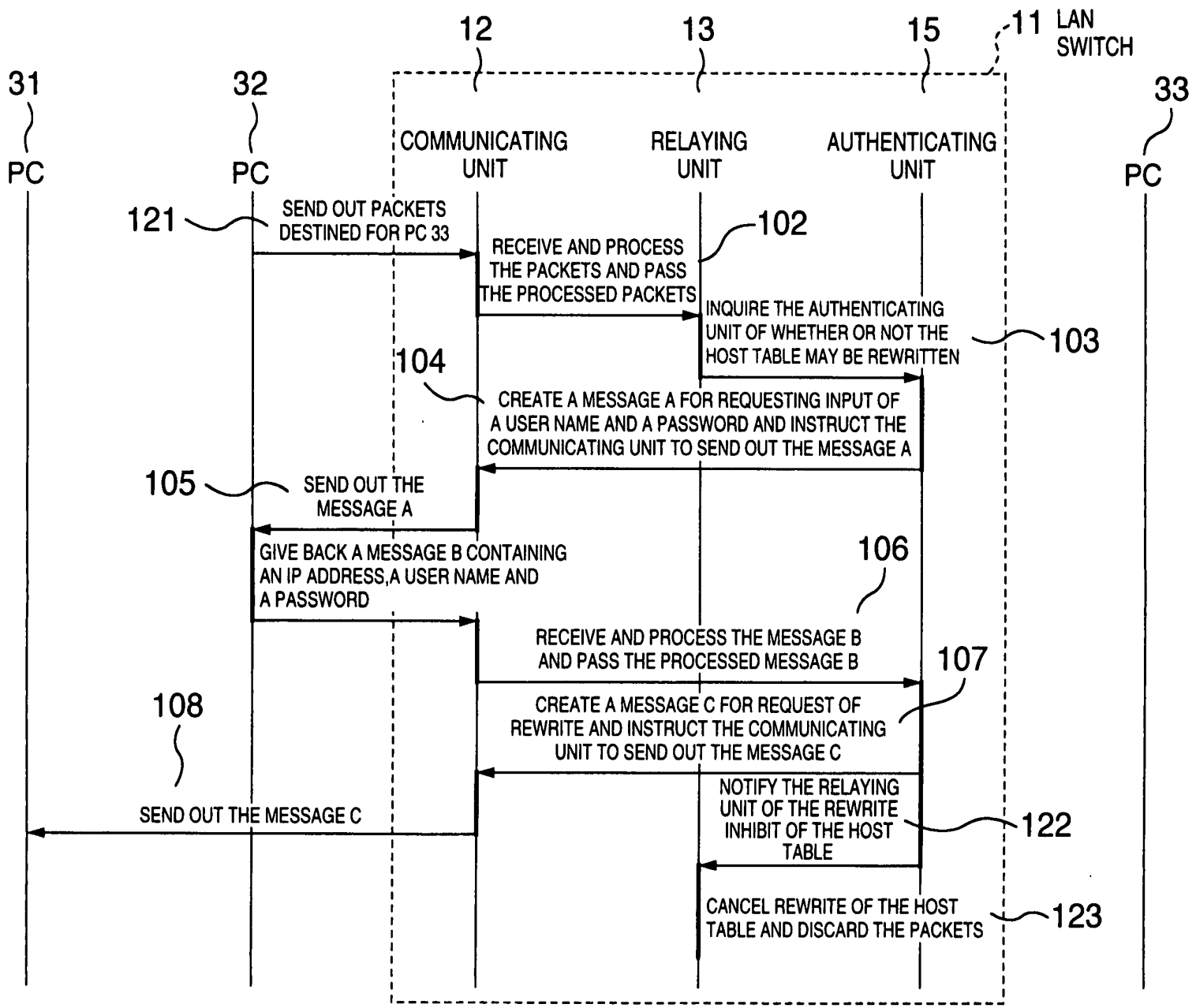

12
13
15
11 LAN SWITCH
31
PC
32
PC
COMMUNICATING UNIT
RELAYING UNIT
AUTHENTICATING UNIT
33
PC
121
SEND OUT PACKETS DESTINED FOR PC 33
102
RECEIVE AND PROCESS THE PACKETS AND PASS THE PROCESSED PACKETS
INQUIRE THE AUTHENTICATING UNIT OF WHETHER OR NOT THE HOST TABLE MAY BE REWRITTEN
103
104
CREATE A MESSAGE A FOR REQUESTING INPUT OF A USER NAME AND A PASSWORD AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE A
105
SEND OUT THE MESSAGE A
GIVE BACK A MESSAGE B CONTAINING AN IP ADDRESS,A USER NAME AND A PASSWORD
106
RECEIVE AND PROCESS THE MESSAGE B AND PASS THE PROCESSED MESSAGE B
107
108
CREATE A MESSAGE C FOR REQUEST OF REWRITE AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE C
SEND OUT THE MESSAGE C
NOTIFY THE RELAYING UNIT OF THE REWRITE INHIBIT OF THE HOST TABLE
122
CANCEL REWRITE OF THE HOST TABLE AND DISCARD THE PACKETS
123

FIG.6

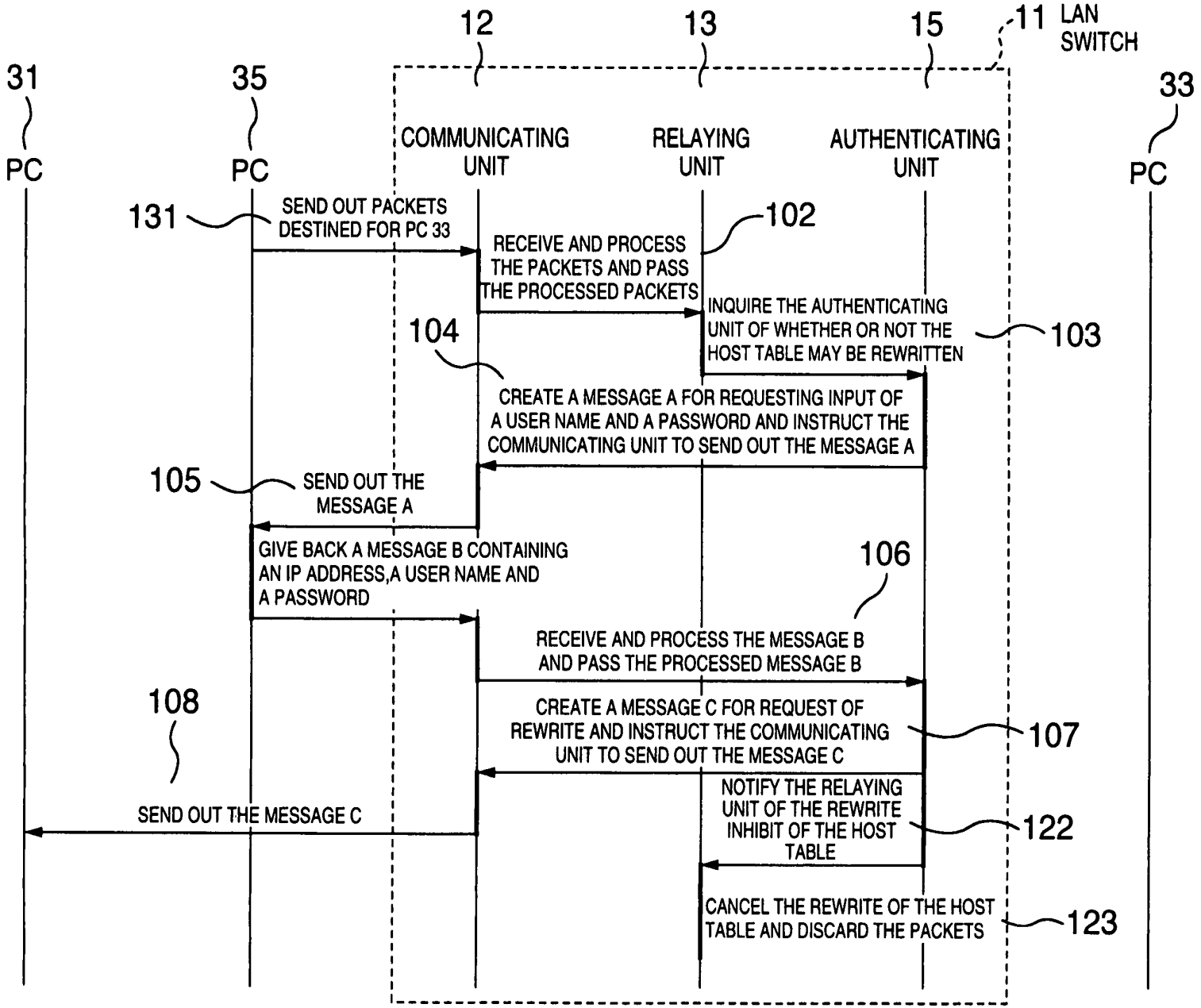
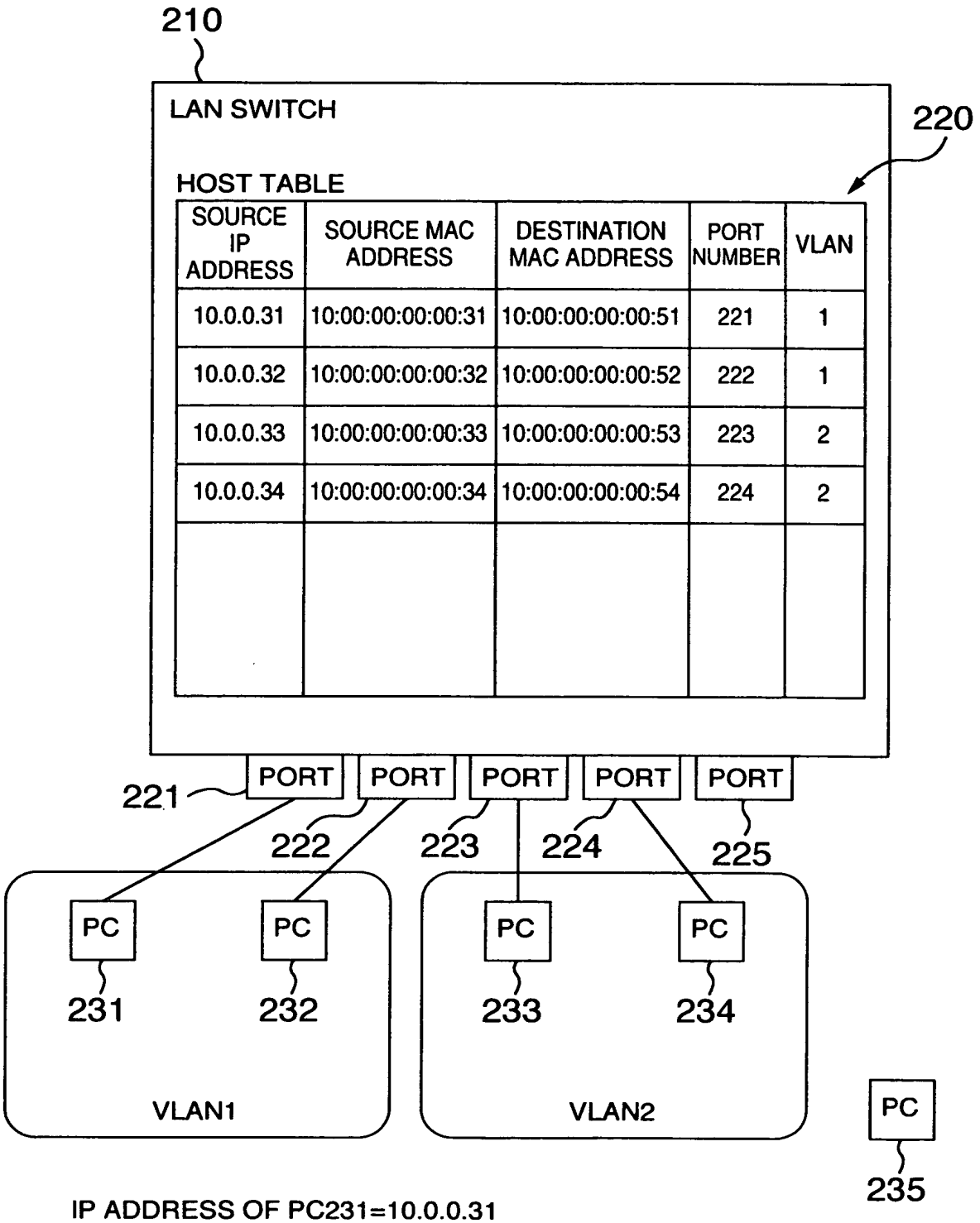

12
13
15
11 LAN SWITCH
31
35
33
PC
PC
PC
COMMUNICATING UNIT
RELAYING UNIT
AUTHENTICATING UNIT
131
SEND OUT PACKETS DESTINED FOR PC 33
102
RECEIVE AND PROCESS THE PACKETS AND PASS THE PROCESSED PACKETS
INQUIRE THE AUTHENTICATING UNIT OF WHETHER OR NOT THE HOST TABLE MAY BE REWRITTEN
103
104
CREATE A MESSAGE A FOR REQUESTING INPUT OF A USER NAME AND A PASSWORD AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE A
105
SEND OUT THE MESSAGE A
GIVE BACK A MESSAGE B CONTAINING AN IP ADDRESS,A USER NAME AND A PASSWORD
106
RECEIVE AND PROCESS THE MESSAGE B AND PASS THE PROCESSED MESSAGE B
108
CREATE A MESSAGE C FOR REQUEST OF REWRITE AND INSTRUCT THE COMMUNICATING UNIT TO SEND OUT THE MESSAGE C
107
NOTIFY THE RELAYING UNIT OF THE REWRITE INHIBIT OF THE HOST TABLE
122
SEND OUT THE MESSAGE C
CANCEL THE REWRITE OF THE HOST TABLE AND DISCARD THE PACKETS
123

FIG.7



IP ADDRESS OF PC231=10.0.0.31
IP ADDRESS OF PC232=10.0.0.32
IP ADDRESS OF PC233=10.0.0.33
IP ADDRESS OF PC234=10.0.0.34